

Application Serial No.: 10/799,503
Attorney Docket No.: 0160113

REMARKS

This is in response to the *Final* Office Action of January 5, 2011, where the Examiner has rejected claims 1, 3-12, 14-22, 24-28 and 30-50. By the present amendment, applicant has amended claims 1, 12, 22, 28, 34, 37, 40 and 43. After the present amendment, claims 1, 3-12, 14-22, 24-28 and 30-50 are pending in the present application. Reconsideration and allowance of outstanding claims 1, 3-12, 14-22, 24-28 and 30-50 in view of the following remarks are requested.

A. Rejection of Claims 1, 3-10, 12, 14-20, 22, 24-26, 28, 30-32 and 34-50 under 35

USC §102(b)

The Examiner has rejected claims 1, 3-10, 12, 14-20, 22, 24-26, 28, 30-32 and 34-50; under 35 USC §102(b), as being anticipated by Kroon (USPN 5,664,055) ("Kroon").

Applicant appreciates the Examiner's time and courteous interview conducted with the undersigned. Applicant has amended independent claim 1 to further recite:

wherein each of said plurality of voicing indexes is utilized for a high frequency region of said input speech signal during said coding said input speech signal by said encoder, wherein said high frequency region is defined as being above 5.0 kHz.

Applicant respectfully submits that Kroon and other cited references fail to disclose, teach or suggest the above limitations of claim 1, as amended. It is respectfully submitted that the support for the present amendment may at least be found at the following paragraphs of the present application:

As illustrated in Figure 1, the speech signal is quite harmonic at lower frequencies, but at higher frequencies the speech signal does not remain as harmonic because the probability of having noisy speech signal

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increases as the frequency increases. For instance, in this illustration the speech signal exhibits traits of becoming noisy at the higher frequencies, e.g., above 5.0 kHz. This noisy signal makes waveform matching at higher frequencies very difficult. Thus, techniques like ABS coding (e.g. CELP) becomes unreliable if high quality speech is desired. For example, in a CELP coder, the synthesizer is designed to match the original speech signal by minimizing the error between the original speech and the synthesized speech. A noisy signal is unpredictable thus making error minimization very difficult.

In a CELP speech coding system, when the speech signal is more periodic, the pitch filter (e.g. 303) contribution is heavier than the fixed codebook (e.g. 301) contribution. As a result, an embodiment of the present invention may use the voicing index to place more focus in the high frequency region by implementing an adaptive high pass filter, which is controlled by the value of the voicing index. An architecture such as the one shown in Figure 4 may be implemented. For instance, Adaptive Filter 310 could be an adaptive filter emphasizing the power in the high frequency region. In the illustration, the weighting filter 420 may also be an adaptive filter for improving the CELP coding process.

As explained in the present application, high frequency areas of wideband speech are noisier, and thus voicing indexes are utilized for a high frequency region of the speech during coding or decoding the speech signal, where the high frequency region is defined as being above 5.0 kHz. It is respectfully submitted that Kroon is focused on narrowband speech coding and does not address wideband speech coding. Therefore, claim 1, as amended, is patentably distinguishable over Kroon, and should be allowed.

In addition, independent claims 12, 22 and 28, as amended, include limitations similar to those of claim 1, as amended, and should be allowed for the same reasons stated above. Further, claims 3-10, 14-20, 24-26, 30-32 and 34-50 depend from claims 1, 12, 22 and 28, respectively, and should be allowed at least for the reasons stated above.

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B. Rejection of Claims 11, 21, 27 and 33 under 35 USC §103(a)

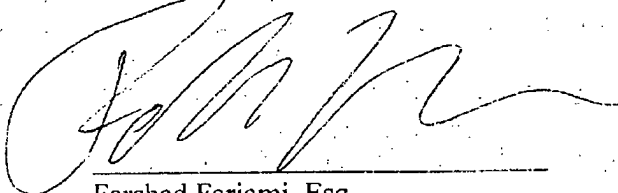
The Examiner has rejected claims 11, 21, 27 and 33, under 35 USC §102(b), as being unpatentable over Kroon in view of Morii, et al. (U.S. Pub. No. 2006/0206317) ("Morii").

It is respectfully submitted that claims 11, 21, 27 and 33 depend from independent claims 1, 12, 22 and 28, respectively, and should be allowed at least for the reasons stated above.

C. Conclusion

Based on the foregoing reasons, an early Notice of Allowance directed to all claims 1, 3-12, 14-22, 24-28 and 30-50 pending in the present application is respectfully requested.

Respectfully Submitted,
FARJAMI & FARJAMI LLP



Farshad Farjami, Esq.
Reg. No. 41,014

FARJAMI & FARJAMI LLP
26522 La Alameda Ave., Suite 360
Mission Viejo, California 92691
Telephone: (949) 282-1000
Facsimile: (949) 282-1002

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EVAN C. GUNDERMAN
Name

Evan C. Gunderman
Signature